

**DEPARTMENT**

**MATHEMATICS**

**TITLE OF COURSE**

**MATHEMATICS**

**LEVEL**

**NATIONAL 5**

**RECOMMENDED ENTRY LEVEL** National 4 Mathematics

**COURSE CONTENT**

**Mathematics: Expressions and Formulae (National 5)**

The general aim of this Unit is to develop skills linked to mathematical expressions and formulae. These include the manipulation of abstract terms, the simplification of expressions and the evaluation of formulae. The Outcomes cover aspects of number, algebra, geometry and reasoning. Topics include: Surds, Indices, Factorisation, Standard Form, Algebraic Fractions, Straight Line, Area and Volume, Circles

**Mathematics: Relationships (National 5)**

The general aim of this Unit is to develop skills linked to mathematical relationships. These include solving and manipulating equations, working with graphs and carrying out calculations on the lengths and angles of shapes. The Outcomes cover aspects of algebra, geometry, trigonometry and reasoning.

Topics include: Simultaneous Equations, Inequalities, Formulae, Quadratic Functions and Equations, Quadratic Theory, Pythagoras' Theorem, Angles, Similarity, Trigonometric Graphs and Equations.

**Mathematics: Applications (National 5)**

The general aim of this Unit is to develop skills linked to applications of mathematics. These include using trigonometry, geometry, number processes and statistics within real-life contexts. The Outcomes cover aspects of these skills and also skills in reasoning.

Topics include: Trigonometry, Vectors, Fractions and Percentages, Statistics.

**METHODOLOGY**

Teacher led classroom management with direct teaching the prime approach. Effective use is made of ICT and online materials to aid learning including: Mymaths, Numeracy Workout, SOLAR, Scholar, TI Nspire graphic calculators. Pupils are encouraged to take ownership and responsibility for making sure tasks in school and at home are carried out effectively and that they carry out necessary revision and consolidation.

**ASSESSMENT**

At Mackie Academy, the three Units have been split up into 5 smaller sections of work. This way we are able to combine aspects of Expressions and Formulae, Applications and Relationships so that pupils have the opportunity to apply their knowledge and skills across a wider variety of contexts.

End of Course examination (external) which will be graded A, B, C, D or Fail comprising of Paper 1 (non-calculator) worth 40 marks and Paper 2 (calculator) worth 50 marks.

To achieve a full course award a grade a pupil must successfully complete all five course assessments AND pass the final external exam. A pass in National 5 is essential for entry to Higher.

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**MATHEMATICS**

**TITLE OF COURSE**

**MATHEMATICS**

**LEVEL**

**NATIONAL 4**

**RECOMMENDED ENTRY LEVEL**  
**discretion)**

**National 3 Lifeskills Mathematics (or Faculty Head**

### **COURSE CONTENT**

#### **Mathematics: Expressions and Formulae (National 4)**

The general aim of this Unit is to develop skills linked to straightforward mathematical expressions and formulae. These include the manipulation of abstract terms, the simplification of expressions and the evaluation of formulae. The Outcomes cover aspects of algebra, geometry, statistics and reasoning.

Topics include: Algebra, Number Patterns, Straight Lines, Area and Volume, Symmetry, Statistics and Probability.

#### **Mathematics: Relationships (National 4)**

The general aim of this Unit is to develop skills linked to straightforward mathematical relationships. These include solving equations, understanding graphs and working with trigonometric ratios. The Outcomes cover aspects of algebra, geometry, trigonometry, statistics and reasoning.

Topics include: The Straight Line, Equations, Formulae, Pythagoras' Theorem, Similar Shapes, Angles and Trigonometry.

#### **Numeracy (National 4)**

The general aim of this Unit is to develop learners' numerical and information handling skills to solve straightforward, real-life problems involving number, money, time and measurement. As learners tackle real-life problems, they will decide what numeracy skills to use and how to apply these skills to an appropriate level of accuracy. Learners will also interpret graphical data and use their knowledge and understanding of probability to identify solutions to straightforward real-life problems involving money, time and measurement. Learners will use their solutions to make and explain decisions.

Topics include: Money, Ratio, Speed, Distance and Time, Integers, Measure and Statistics.

### **METHODOLOGY**

Teacher led classroom management with direct teaching the prime approach. Effective use is made of ICT and online materials to aid learning including: Mymaths, Numeracy Workout, SOLAR, Scholar, TI Nspire graphic calculators. Pupils are encouraged to take ownership and responsibility for making sure tasks in school and at home are carried out effectively and that they carry out necessary revision and consolidation.

### **ASSESSMENT**

At Mackie Academy, the three Units have been split up into 6 smaller sections of work plus the Numeracy. This way we are able to combine aspects of Expressions and Formulae, Relationships, and Numeracy so that pupils have the opportunity to apply their knowledge and skills across a wider variety of contexts. An Added Value assessment takes place at the end of the course (internally).

To achieve a full course award a grade a pupil must successfully complete all internal Unit assessments AND pass the Added Value Unit.